





LaRosa Partnership Program

2021 Annual Training

April 13, 2021 11:00 am – 1:00 pm





Agenda

11:15 – 11:25 LPP Sampling & Pick-Up Schedule

11:25 – 11:40 Quality Assurance

11:40 – 12:10 Sampling Procedures: Flow, Grab Samples, QAQC

12:10 – 12:15 Break

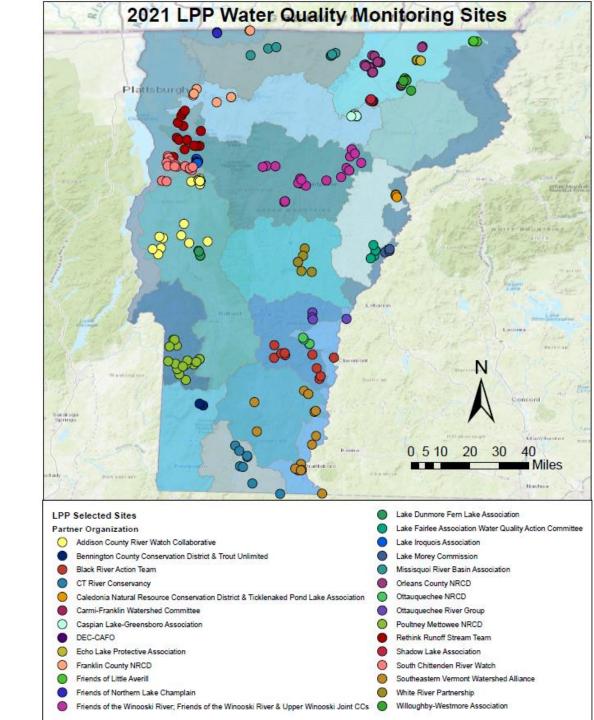
12:15 – 12:25 Sample Storage & Preservation

12:25 – 12:35 Safety in the Field

12:25 – 1:00 Open Discussion

Introductions

- Name
- Organization
- Monitoring area



Sampling Schedule

Eight biweekly "regular" samples from May – August

• Should be same day each week

Two high flow samples – rain induced events

- Ideally collected at peak flow toward the end of the storm while the rain is still falling, but safety is the priority. Do not sample if flows endanger your safety.
- Can be any day of the week as needed up to you to organize logistics best for your organization
- Collecting two high flow samples may not be possible do what you can

Collect first samples before May 10th/12th and last samples before August 17th/19th

Sampling Schedule

Tentative Date	Goal
April 16 th	Administration: LPP staff submit QAPP, sampling plans, bottle orders, etc.
By April 30 th	Print pre-log sample forms, labels, & package supplies for each group. Finalize pick-up route and locations. Test drive the pick-up route & drop off bottles & supplies.
May 1 st	Sampling season begins! 8 regular sampling events + 2 high flow events (10 total events). Pick up samples biweekly on Mondays/Wednesdays (some partners may have a different pick-up date with the Lay Monitoring Program). Drop off new sets of sample bottles and labels during pick-ups at least monthly. DEC staff deliver and submit samples to VAEL. Partners dropping off their own samples should do so biweekly but can choose the day.
May 10 th -August 19 th	Pick-Up Dates: Week 1: May 10 th & 12 th Week 2: May 24 th & 26 th Week 3: June 7 th & 9 th Week 4: June 21 st & 23 rd Week 5: July 6 th & July 8 th (Tues/Thurs due to 4 th of July holiday) Week 6: July 19 th & 21 st Week 7: August 2 nd & 4 th Week 8: August 17 th & 19 th (Tues/Thurs due to Bennington Battle Day holiday)
Week of August 17 th	Last sample pick-up week.

Sample Pick-Up Routes

West/South Route – Mondays (Tuesdays during holiday weeks)	North/East Route – Wednesdays (Thursdays during holiday weeks)
Franklin County NRCD/Friends of Northern Lake Champlain	Ticklenaked Pond
*Addison County River Watch Collaborative/Lake Iroquois Association/South Chittenden River Watch	Lake Willoughby
Rethink Runoff Stream Team	*Friends of Little Averill
BRAT	Orleans County NRCD/Echo Lake
CRC/SeVWA	*Lake Fairlee/Lake Morey
	*MRBA

^{*}subject to change

Sample Pick-Up Routes

Partners Dropping-Off Samples to VAEL	Pick-Up with Lay Monitoring Program	TBD (soon!)
PMNRCD (taking BCCD samples)	Shadow Lake Association	Addison County River Watch
Friends of the Winooski River	Caspian Lake?	Lake Iroquois Association
White River Partnership	Lake Dunmore/Fern Lake?	South Chittenden River Watch (Lewis Creek)
	Friends of Little Averill?	MRBA
	Lake Morey/Lake Fairlee?	ORG/Ottauquechee NRCD

Questions?



Quality Assurance







Updated QAPP

Field blanks and duplicates

Analytical duplicates

EPA's Volunteer Monitor's Guide to Quality Assurance Project Plans

Element 1.

Long-Term Five Year: 2021 – 2026 QUALITY CONTROL/QUALITY ASSURANCE PROJECT PLAN

LAROSA PARTENRSHIP PROGRAM FOR VERMONT STREAMS

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Month, 2021

Jim Kellogg, VTDEC Project Manager	Date	
Tom Faber, USEPA Program Manager	Date	
Steve DiMattei, USEPA QA/QC Officer	Date	
David Crosby, VAEL Quality Assurance Officer	Date	

QAQC Samples: Duplicates

Field Duplicates and Field Blanks:

- Lab Sample ID has a separate sample number than the original "parent" sample (i.e. 12345-01 & 12345-02)
- Each make up 10% of your samples.
- Not the same as the extra lab duplicate containers labeled "duplicate/spike" that are provided by VAEL on some parameters (TP, DP, E. coli)

Lab Duplicates (only for TP):

- The lab will provide separate bottles to take extra duplicates for their own testing purposes labeled with "Collect sample for duplicate/ spike"
- Take these samples using the same procedures as your field duplicate
- Labeled with same Lab Sample ID as parent sample followed by Dup
- Can be taken at **any** site but should not be skipped. Lab needs 10% of samples to be lab dups.

COLLECT SAMPLE FOR DUPLICATE/SPIKE

Lab Sample ID # 12

12345-01 Dup

QAQC Samples: Blanks

Equipment/Field Blanks:

- Samples of deionized water that are taken the same way as regular samples (no rinse- fill with DI water to 50 mL line)
- Will potentially show field sampling errors involved with proper rinsing and equipment cleaning
- Used to determine if there is contamination between sites

Laboratory Blanks:

- Samples of deionized water that are analyzed the same way as samples for any given parameter
- Assist in identifying laboratory errors involved with the de-ionization system, lab preparations, or lab analysis

Questions?



Sampling Procedures

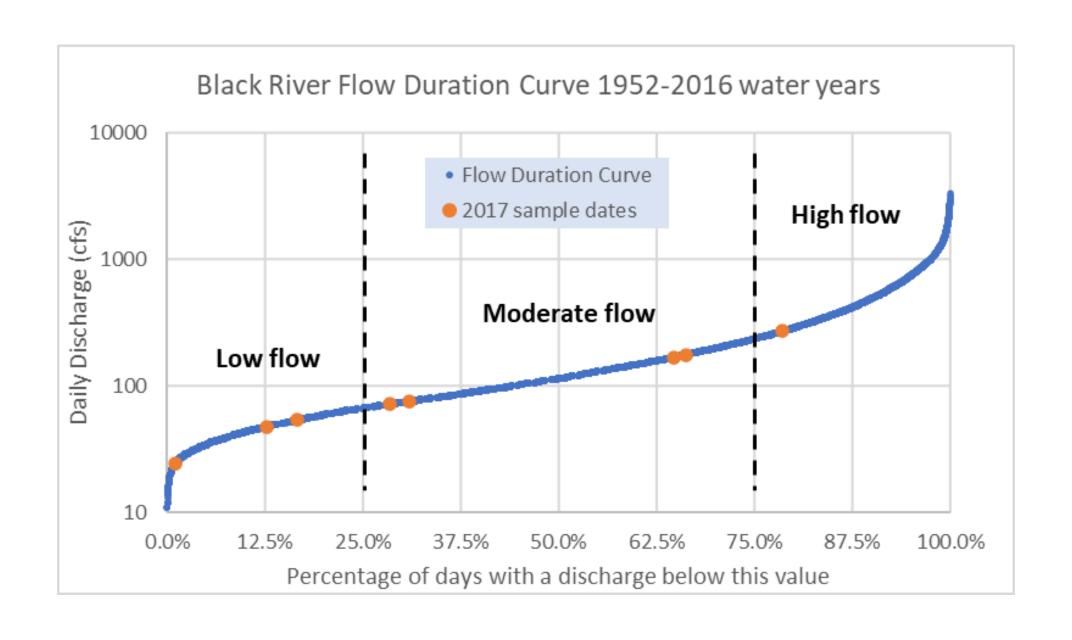
- Important to consider the concentration of a parameter and the duration of flow conditions at the time of sample collection
- Water quality can change dramatically during and immediately following a precipitation or snow melt event
- A quantitative measurement from a stream gauge is the most precise method, but a two-part (flow level & category) qualitative observation is useful when this is not possible
- Being familiar with stream conditions will assist with observations
- Can be incorporated in VT DEC's IWIS database

Flow Levels:

- **Low** conditions are low relative to the entire range of flows experienced at site (greater than or equal to these levels 75% of the time).
 - Generally occur during late winter (January-February) and late summer (July-September)
 - Often the streambed is partially dry with channel bars exposed and it is possible to walk along the edge of a dry streambed
- **Moderate** at a mid-level or average streamflow conditions, or most typical flows experienced in the stream (levels experienced 50% of the time).
 - Can occur at any time of year
 - ~90- 100% of the stream bed is under water, but not up to the sharp incline of the stream bank

Flow Levels:

- **High** Stream is well-above an average level of flow (greater than or equal to these levels only 25% of the time).
 - Generally occur during spring and fall, but can occur due to rainfall any time of year
 - Stream is full from bank to bank ("bankfull flow") but not spilling onto floodplain
- Flood Stream is exceeding bankfull levels and accessing floodplain (if exists).
 - Generally occur less than 5% of time
 - Also indicated by submergence or active transport of terrestrial and woody vegetation
 - Do not sample during flood conditions due to safety



Low Flow Examples







Moderate Flow Examples







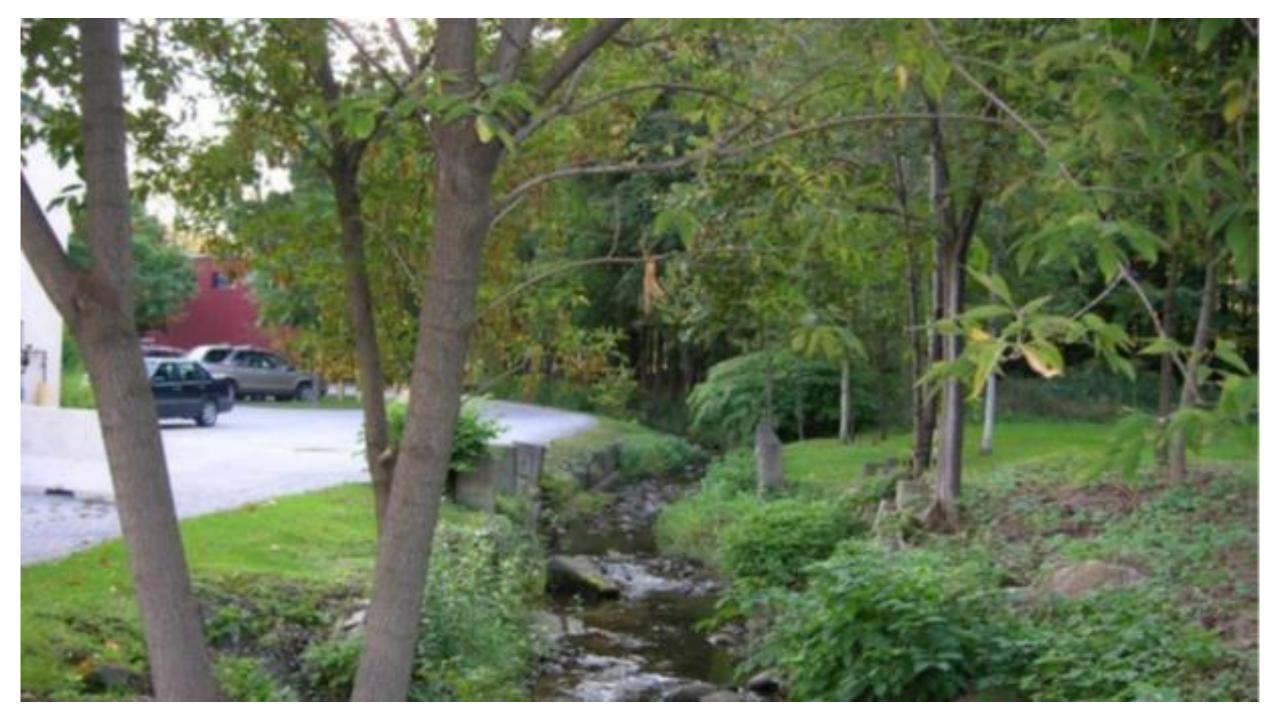
High Flow Examples



Flood Flow Examples









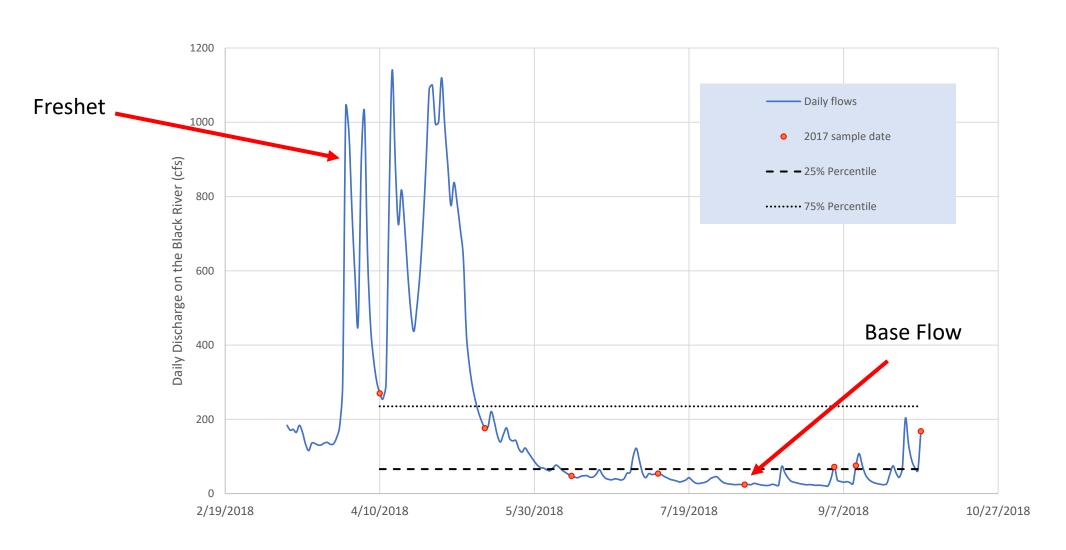






Flow Categories:

- Base Flow the water level is relatively constant at time of sampling and not rising or falling.
 - Subsurface flows account for almost all water reaching streams
 - Can exist under both low and sometimes moderate, but not under high or flood levels
- Freshet Flow the water level is actively rising or falling in response to a rain event or snow melt.
 - Water can be turbid under these conditions due to stormwater runoff and resuspension of stream bed sediments
- Hydro Flow water level is rapidly rising or falling solely due to the release of water from an upstream dam
 - Indicated by a rise in streamflow with no recent precipitation or snow melt and no similar rises on local stream gauges
 - Check the watershed protection layer on the ANR atlas to identify dams and when they are operated for electricity generation



Flow Observation Submission Form

- Submit **biweekly** to <u>meaghan.hickey@partner.vermont.gov</u>
- Survey 123 trial need partners to volunteer

LPP Project ID (Select from drop-down menu)	LaRosa ID	Date of Observation	Time of Observation	Flow Level	1	Visible Turbidity (Yes or No)	LaRosa Partnership Pr	ogram Flow Observation
9-Southeastern Vermont Watershed Alliance (SeVWA)	515799-EPutney_3.6	5/26/2021	1100	Moderate	Freshet	yes	2021 Sampling Seasor	1
							Contact Meaghan Hick	key with questions
							Meaghan.Hickey@pa	rtner.vermont.gov
							802-461-6306	
							Flow Level	Flow Type
							Low	Base
							Moderate	Freshet
							High	Hydro
							Flood	
							LPP Partner Name:	
							LPP Volunteer Coordinator:	
							VAEL Project ID:	

Sampling Kits



Sample containers/Styrofoam holders



Pre-printed labels



Distilled water bottles for field blanks



Coolers and ice (labeled with organization name)



VAEL pre-log forms

Sample Containers

Use the correct containers designated for each parameter:

- Total phosphorus 50 mL glass tube with white cap
- Total nitrogen 50 mL centrifuge tube with blue (or green) cap
- **Chloride** 50 mL centrifuge tube with **purple cap**



50 mL glass tube (TP)



50 mL centrifuge tube (TN & CI)

Sample Labeling Instructions

1

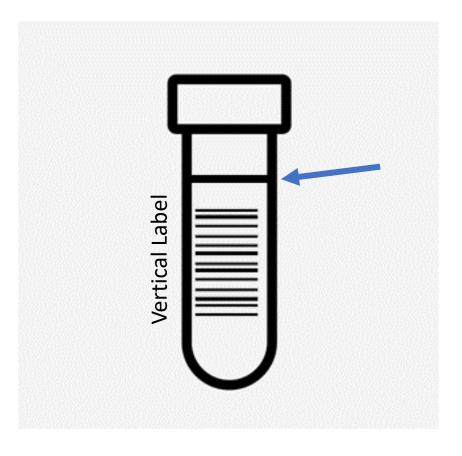
Keep sample container dry prior to securing labels for good adhesion.

2

Place labels
vertically. The bar
code scanner can't
read horizontal
labels due to the
curvature.

3

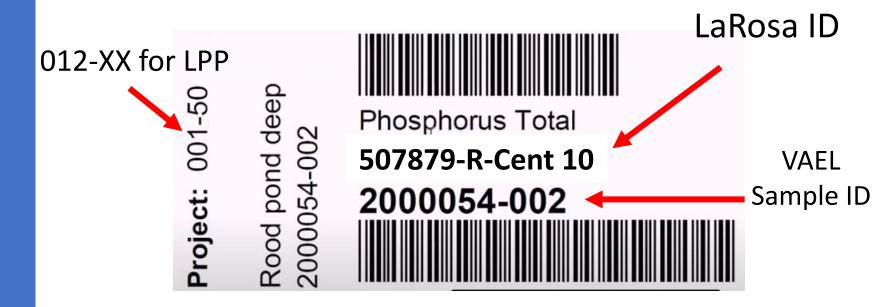
TP labels should be placed **below the black line** on the glass tube.



Adhere labels before sampling!

Sample Labels

- Adhere to bottles before sampling
- 6-digit Location ID-QC code-LaRosa ID
 - QC code: R for regular samples, B for blanks, D for dups
- VAEL Sample ID (xxxxxx-xxx)
 - Location code & sample number



Pre-log Paperwork

Record on pre-log form:

- Correct sample site
- Sampling date/time
- Project coordinator name
- Notes on errors, anything changed, or unusual
- Indicate if any samples not taken. Cross out the parameter
- Writing should be done in blue/black pen no pencil
- Samples missing this info may be rejected by VAEL



Use Only	Temperature (°C):	— On-ice?	
ME	Date/Time Received:		AM / PM

VAEL STREET AND A STREET	0-410-2000054	Received By : Date/Time Received:		On-ice? AM / PM
VAEL ID: 200005 Project: 001-50	54-001 -Demo Project			
Customer Sample #:	Rood pond 1M			
Date and Time Collec	ted:	Collected By:		
Comments:				
Test Nitrogen Total Phosphorus Total Metals Total Metals Earth	Container 50 ml Plastic Blue Co 60 ml glass vial 125 ml Rd Plastic 125 ml Rd Plastic	ар	NA N	
VAEL ID: 200005 Project: 001-50	54-002 -Demo Project			
Customer Sample #:	Rood pond deep			
Date and Time Collec	ted:	Collected By:		
Comments:				

Sample Field Sheet

Project Name			Collected by	ted by								
Lake Name	Date (mm/dd/yyy				(XXX)		Start Time (00:00)					
Weather Conditions (circle all that apply)							Antecedent Precip (www.cocorahs.org/Maps)					
Cloudy	Sunny	Partly Sunny	Hot	Warm	Cool	Cold	24 <u>hrs</u> (in)	48 <u>hrs</u> (in)				
Rain	Showers	Drizzle	Dry	Windy	Breezy	Calm	Flow Level (circle one)	Low	Mod	lerate	High	Flood
Air Temp (F)								Base	Base Fres		het	Hydro

1

Sample ID (ex. 1900422-002)	Waterbody	Time Collected (00:00)	Parameters Measured (circle all that apply)	Additional Notes
			TP TN CI	
			TP TN CI	
			TP TN CI	

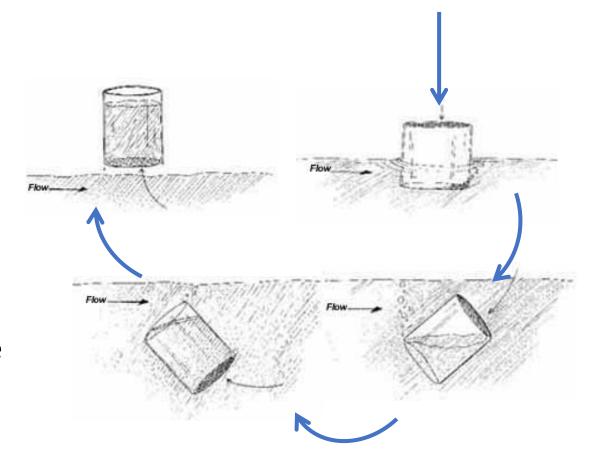
Sampling Procedures: Grab Samples

- Take samples near center of stream flow and mid-way between surface and bottom
- Try not to disturb bottom sediment while sampling
- Wait for any disturbed sediment to flow downstream
- Avoid touching inside of bottles and caps
- Rinse TN & Cl bottles three times before taking the sample
- TP samples should not be rinsed
- Take the sample facing upstream



Sampling Procedures: Grab Samples

- Place open sample container upside down over water, and fill in a "U" shape against the flow of water, away from the body
- ❖ Pour off samples to the required volume before capping, indicated by fill lines on the bottles (important for TP)
- If you pour off a TP sample below the fill line, do not redo the whole sample! Fill the cap with sample water to pour into the bottle. Make sure fingers don't touch sample!



Reminders



Record and submit flow observations



Double check that the correct sample IDs are recorded on the pre-log form and match the bottle labels



Record notes of anything unusual, noteworthy, or that was changed during the sampling process on pre-log form



Take pictures of highlights or important observations if possible

Questions?



5-minute Break

Sample Preservation & Storage

All samples have hold times of 21-28 days

Store Total Nitrogen Samples on ice after collection

Acidify Total Nitrogen within 24 hours







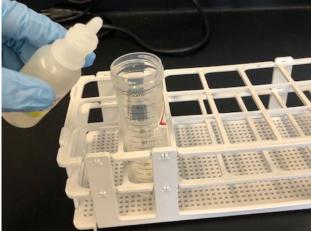
Nitrogen Acidification

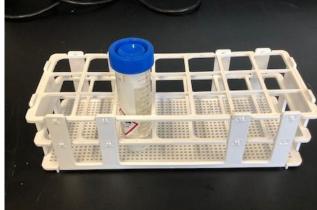
- Read SDS sheet & sign safety agreement
- Always wear provided disposable gloves and safety glasses when handling acid
- Do not put gloved hands near eyes or mouth
- Avoid performing acidification in the field
- If you spill the acid, absorb with paper towel and dispose in plastic bag
- If you spill acid on skin or clothes, rinse thoroughly with water











Procedure:

- 1. Put on safety goggles and gloves
- 2. Secure the sample to facilitate easy and safe dispensing of acid
- 3. Dispense 1 drop of 98% sulfuric acid
- 4. Immediately recap the acid dropper and replace in secondary container
- 5. Cap the acidified samples and gently invert 5 times to mix
- 6. Carefully remove gloves so as not to touch exterior side of glove with bare hands and dispose in a safe container

Questions?



Safety in the Field

SSS – <u>safe sampling of</u> <u>streams</u>

Environmental hazards (ticks, poison ivy, etc.)

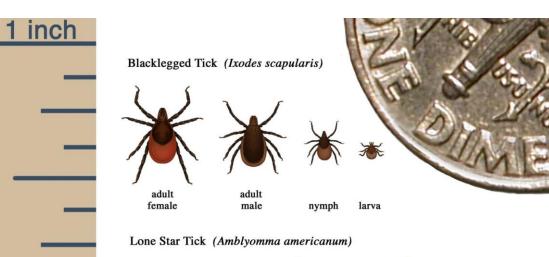
COVID-19 safety

Safe Sampling of Streams

- Carry a cell phone, sample with a partner, and let someone know where you are, when you intend to return, and what to do if you do not return on time
- Honor private property rights. Never cross a landowner's property without permission.
- Never wade in swift or high water. Do not wade if depth is greater than knee-deep. Do not monitor if the stream is at flood stage.
- If possible, have a first aid kit and medical form for each volunteer
- Be aware of the nearest hospital and how to get there
- Listen to weather reports never monitor if severe weather is predicted
- Do not walk on unstable stream banks
- Be aware of wildlife, insects, and skin irritating plants

TickEncounter Resource Center | Ixodes scapularis (Blacklegged ticks or Deer ticks)







Dog Tick (Dermacentor variabilis)



2

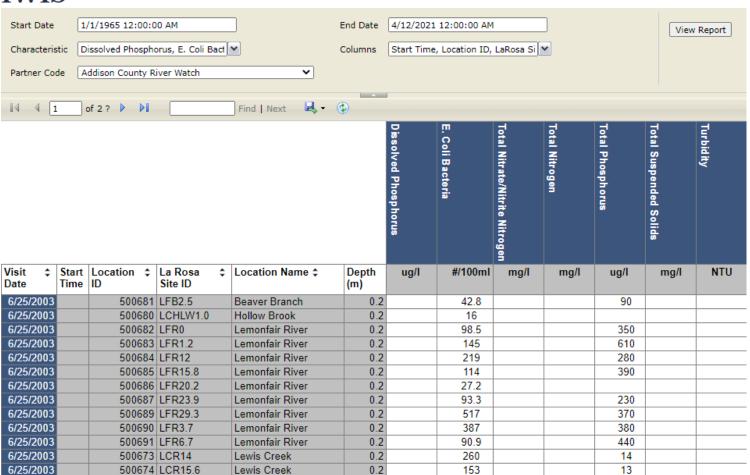
Data Reports

IWIS

EIDEID003

E00675 | CD17.2

Lowie Crook



Questions?



Open Discussion

Topics:

- Potential method/group for communication among partners during season?
 - If so, what platform?
- Lessons learned about organizing volunteers during a pandemic
- Tips/advice for new LPP partners

Wrap-Up

Coming soon:

- Nitrogen Acidification Safety
 Agreement, SDS, and written instructions
- VAEL project #s
- LPP Field Sampling Procedures guidance document & additional training videos
- Final sample drop-off routes and locations
- Sampling supplies- last week of April
- April newsletter

Thank you!